96L6E

Radar

Mission

The 96L6E radar is designed to detect and identify air targets, to determine the coordinates – azimuth, slant range and altitude, and to feed radar data to users. It can operate as part of the S-300PMU, S-300PMU1 and Favorit air defence missile systems and interoperate with the Baikal-1E, Senezh-M1E, Osnova-1E and Pole-E command and control systems.

The 96L6E all-altitude target acquisition radar can detect various air targets, including stealth ones, and high precision weapons within a wide altitude-speed envelope. Through adaptive use of wideband signals and multi-frequency operation, the radar efficiently acquires low-, medium- and high-altitude targets under ECM conditions, with few false alarms. To detect targets flying at very low altitudes over woodlands or rugged terrain, the radar's antenna can be raised on a special tower.

Features

The 96L6E radar is capable of scanning designated coverage areas and automatically selecting high-priority targets to generate tracks, automatically locking on targets, tracking and prioritising them, automatically selecting high-priority targets and feeding their coordinates to illumination and guidance radars, updating coordinates of the targets being tracked.

Composition

The 96L6E radar configuration depends on its version.

The single-vehicle version includes an antenna assembly; a container housing electronic equipment, operator's workstation, communications and IFF equipment, a set of spare parts, tools and accessories; a self-propelled platform fitted with a self-contained power supply system.

The two-vehicle version comprises an antenna post on a truck-and-semi-trailer road train, mounting an antenna assembly and a self-contained power supply system; an electronic equipment van on a truck-and-semitrailer road train housing equipment container and self-contained power supply system. This variant allows for a 100-m spacing between antenna and electronic equipment posts.

External power sources, trucks, an antenna tower with a tractor to carry it, remote operator workstations (up to four units) and group sets of spare parts, tools and accessories can be attached to the radar.

The 96L6E radar can be transported by railway, sea and air.

Basic specifications	
Waveband	centimetric
Radar coverage:	
range, km	5 - 300
azimuth, deg.	360
elevation, deg.	-3...+60
speed, m/s	30 - 2,800
Clutter suppression ratio, dB	up to 70
Number of target tracks	up to 100
False target designations during 30min-operation	not more than 5
Data update rate, s	6 - 12
Continuous operation time	unlimited
Deployment time (from march), min:	
single-vehicle version	5
two-vehicle version	30

PRV-13

Mobile Radar Altimeter Modernisation

Mission

The PRV-13 radar altimeter modernisation is to improve its tactical and technical characteristics and extend service life, namely: to increase target acquisition range by augmenting receiver sensitivity, to enhance protection against passive interference, clutter, meteorological ghosts and their combinations with non-synchronous pulse jamming, to increase reliability characteristics, and to reduce power consumption.

The modernisation envisages replacement of the existing electronic equipment in the main functional parts of the radar system with new equipment based on modern components.

It comprises a number of unit/component replacements:

- of the input microwave amplifiers employing the UV-54 travelling wave tubes by solid-state microwave amplifiers;
- of the hydrogen thyrotron in the modulator by a metal-ceramic one;
- of the high-voltage vacuum rectifiers by semiconductor diodes;
- of the receiver units in main and auxiliary channels by ones employing modern components;
- of the oscillator unit by one built with the 3rd/4th-generation components employing SHF micro-assemblies;
- of the moving target selection, non-synchronous interference protection and synchronisation equipment by equipment built with modern electronic components;
- of the circular scan and altitude indicators by new units incorporating the 23LM34V cathode-ray tubes together with their beam-deflection systems.

The equipment introduced does not require scheduled maintenance, and the upgraded PRV-13 total maintenance time is reduced by 1.4-1.6 times.

If the modernisation is carried out along with the renewal repair of the non-modernised equipment of the PRV-13 radar altimeter, its operating life is restored to at least 80% level.

Thus, the modernisation allows to create practically new, modern radio altimeter capable of performing airspace control missions.

Basic specifications

	PRV-13	Upgraded PRV-13
Max detection range, km	310	350
Receiver noise factor, dB	7	4,5
Clutter rejection factor, dB	17	30-36
Asynchronous interference suppression factor, dB	17	30
Operating life restoration, %	-	80*
Operating life extension, years	-	8-10*
Upgraded equipment operating life, hours, at least	-	10,000

* - modernisation+renewal repair

MOMENT-1

Unified Mobile Radar Repair Module

Mission

The Moment-1 radar repair module is designed to provide:

- automated technical status checking of standard line replaceable units of modern and prospective radars and automated command and control systems;
- computer-aided malfunction diagnostics and fault-finding down to a single LRU;
- repairs of various LRUs, such as microprocessor, analogue and digital cells, backup power units;
- LRU post-repair testing in accordance with the manufacturer's technical specifications.

Main features of the module include automated workstation preparation for computer-aided testing and fault-finding; a comprehensive set of testing and measuring equipment, processing and rigging devices; a wide spectrum of plug-in electronic components and materials; and a comprehensive computer-based information reference system.

Basic specifications	
Workstations:	
for electronic equipment repairs	3
for testing and diagnostics	4
Functional test accuracy probability	0.95
Work capacity, cell/hour:	
functional testing	12
fault-finding	8
repairing	5
Types of cells tested and repaired	1,129
Deployment and preparation-to-work time, hrs	2

Composition

The mobile variant of the module comprises a control post in the box body, a repair facility mounted on the KamAZ-4310 truck chassis, the ED 2x16-T400-1VAS self-contained power supply unit mounted on the KamAZ-4310 truck chassis.

The Moment-1E unified repair module is self-sufficient as far as electronic equipment in-field repairs are concerned.

PHOENIX

IR All-Round Surveillance System

Mission

The Phoenix IR all-round surveillance system is designed to automatically detect, identify and track air and surface targets, as well as measure their range, azimuth and elevation angles.

The system carries out all-round surveillance in the infrared waveband. It can be deployed both independently and together with air defence weapon and radar systems.

The Phoenix system can be employed as a mobile reconnaissance asset when mounted on ground vehicles, SAM launchers, combatant ships of different classes or as a stationary variant.

The Phoenix system is very efficient in intensive electronic countermeasures and fire suppression of friendly air defences, as well as in the radio blackout mode.

Composition

- input electro-optical sensor
- control panels and data displays
- special computer
- auxiliary power sources
- set of cables and fasteners

Basic specifications	
Target detection range, km:	
cruise missiles and UAV	5 - 7
helicopters	8 - 9
tactical aircraft	15 - 18
Coverage area, deg:	
elevation	10 - 40
azimuth	360
Spectral range, μm	8 - 12
Elevation scan area, deg	18
Data update frequency, Hz	0.5
Number of simultaneously detected targets	more than 50